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10/767,177

01/30/2004

Keith R. Carver

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01/07/2010

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EXAMINER

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PAPER NUMBER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KEITH R. CARVER

Appeal 2009-002775
Application 10/767,177
Technology Center 2800

Decided: January 7, 2010

Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and
MARK NAGUMO, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*.

DECISION ON APPEAL

A. Introduction¹

Keith R. Carver (“Carver”) timely appeals under 35 U.S.C. § 134(a) from the final rejection² of claims 1-25 and 33-36.³ We have jurisdiction under 35 U.S.C. § 6. We AFFIRM-IN-PART.

The subject matter on appeal relates to an electrical and mechanical connecting system for joining two electrical conduit assemblies. According to the 177 Specification, typically one or more electrical cables are electrically and mechanically terminated with a cable lug having a contact plate. One cable is then coupled to the next by connecting the contact plates. Prior art connectors are said to be often fixed to the plates, requiring unwieldy rotation of the plates to secure the contact. Alternatively, if the connectors are rotatable relative to the contact plates, the connectors of the prior art are said to be also releasable and thus easily removed from the plates and lost. The claimed connectors and terminals are said to overcome these problems by providing connectors that comprise rotatably and non-releasably secured securing members.

The claimed connecting systems comprise two specially designed conductive connecting plates and a conductive securing member. The first connecting plate is provided with an aperture through which the body of the

¹ Application 10/767,177, *Electrical Connector with Rotatable Fastener*, filed 30 January 2004. The specification is referred to as the “177 Specification,” and is cited as “Spec.” The real party in interest is listed as Cableco Technologies Corporation. (Appeal Brief, filed 13 August 2007 (“Br.”), 1.)

² Office action mailed 22 March 2007 (“Final Rejection”; cited as “FR”).

³ Claims 26-32 have been withdrawn from consideration.

securing member is passed. The securing member has a generally cylindrical body that passes through the aperture in the connecting plate and a head that does not. To prevent accidental removal, the end of the body is swaged (i.e., flared) after passing it through the aperture. The interior of the cylinder is threaded to accept a threaded securing member projecting from the second connecting plate. Thus, the first connector is like a hollow bolt, threaded only in the hollow interior of the bolt, that is rotatably captured in the first contact plate, and that can be tightened onto a threaded male connector without rotating either contact plate.

The Examiner has maintained the following grounds of rejection:⁴

- A. Claims 1, 4, 15-18, and 33-36 stand rejected under 35 U.S.C. § 102(b) in view of Krause.⁵
- B. Claims 2, 3, 19, and 20 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Krause and Kue.⁶
- C. Claims 5, 6, and 12 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Krause and Bentrin.⁷
- D. Claims 7-10, 13, 14, and 22-25 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Krause and Rowls.⁸

⁴ Examiner's Answer mailed 13 December 2007. ("Ans.").

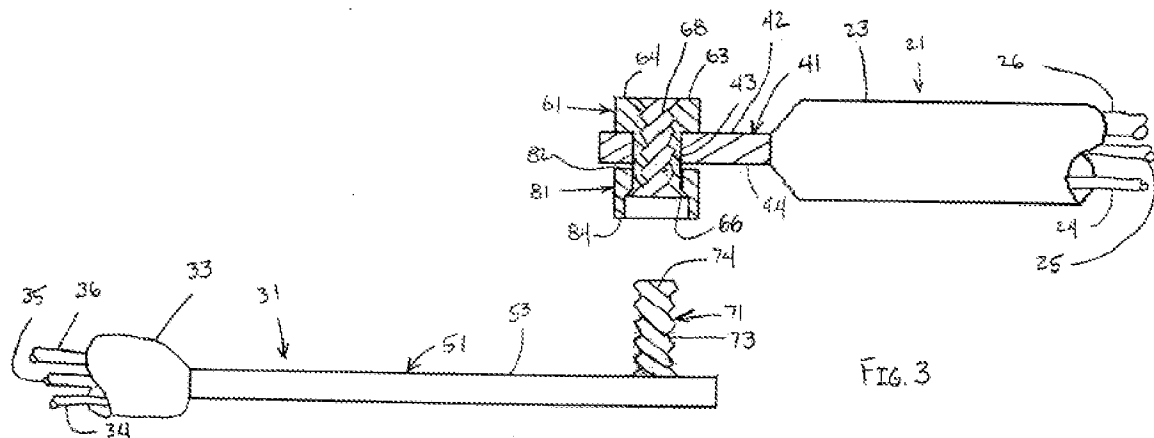
⁵ Jens Krause, *Cable Lug with a Defined Contact Surface*, U.S. Patent 6,343,962 B2 (2002).

⁶ J.F. Kue, *Fastener Module*, U.S. Patent 5,975,821 (1999).

⁷ Brian G. Bentrin, *Floating Captivated Wrenchable Nut*, U.S. Patent 6,866,456 B2 (15 March 2005), based on an application filed 2 June 2003.

- E. Claims 11 and 21 stand rejected under 35 U.S.C. § 103(a) in view of the teachings of Krause.

Representative Claims 1, 16, and 33 are reproduced from the Claims Appendix to the Principal Brief on Appeal. Claim 1 is annotated with reference to the embodiment depicted in Figure 3, which is reproduced below.



{ Figure 3 is said to show an electrical connector }

We emphasize, as will become apparent in the Discussion, that the annotation is intended only as a guide to orient the reader, as the claimed structures are not limited to the structures shown in the Figures.

Briefly, a first electrical conducting cable assembly 21 ends in a first conductive contact 41, which is provided with an aperture 43. The body section 65 (not labeled here: see Figure 1, not reproduced here) of first fastener 61 passes rotatably through aperture 43, with head section 63 resting on contact 41. Distal end 66 of fastener 61 is swaged, as shown, to prevent withdrawal of the fastener through contact 41 and, as shown,

⁸ Garth A. Rowls and Elbert L. Johnson, *Corrosion-Proof Battery Terminal and Cable Connector Therefor*, U.S. Patent 3,775,730 (1973).

optional spacer 81. Threaded passageway 68 of first fastener 61 extends to distal end 66 to threadably receive second fastener 71, which extends from second conductive contact plate 51 of second electrical assembly 31.

The dispositive issue with respect to each independent claim is identified following the claim.

1. An electrical connector, comprising:

- a first electrical conduit assembly [21] having
 - a first conductive contact [41] and
 - an aperture [43] in said first conductive contact [41];
- a first fastener [61] rotatably received in said aperture [43],
said first fastener [61] having a head member [63] and a body portion [65],
a threaded passageway [68] extending from said head member [63] to a distal end [66] of said body portion [65],
said distal end of said body portion being radially outwardly swaged into a substantially frustoconical configuration to prevent said first fastener from being accidentally removed from said aperture;
- a second electrical conduit assembly [31] having a second conductive contact [51]; and
- a second fastener [71] extending outwardly from said second conductive contact [51] and adapted to be threadably received by said passageway [68] of said first fastener [61].

(Claims App., Br. 18; indentation, paragraphing, emphasis, and bracketed labels to Figures 1 and 3 added: see Spec. 6, ¶¶ [0031]-[0033].)

Carver contends, *inter alia*, that the Examiner erred in rejecting claim 1 as anticipated by Krause because “the annular flange of Krause . . .

does not define a threaded passageway . . . extending from the head portion to the distal end of the body portion as claimed.” (Br. 6.) The Examiner’s stance to the contrary (FR 3, ll. 5-6, 8, ll. 1-2; Ans. 10, ll. 2-6) notwithstanding, we hold that claim 1 does require threading to the distal end of the body portion of the first fastener, and we therefore REVERSE the rejection of claim 1. As the rejections of the claims dependent on claim 1 do not cure this defect, those rejections are also REVERSED.

16. A terminal for an electrical conduit, comprising:

[a] a conductive contact having an aperture therein;

[b] a conductive securing member having
a *support section* and a first locking section;

[i] said conductive securing member having
a threaded through passageway adapted to
threadably receive another terminal;

[ii] *said securing member support section being
rotatably received in said aperture in said conductive
contact,*

[iii] said locking section being radially outwardly
swaged into a substantially frustoconical
configuration *after said support section is received in
said aperture;* and

[c] a second locking section associated with said
conductive contact to resist removal of said conductive
securing member from said conductive contact by
engaging said first locking section on said securing
member.

(Claims App., Br. 18; indentation, paragraphing, bracketed labels, and
emphasis added.)

Regarding claim 16, Carver argues, *inter alia*, that “Krause further fails to disclose a securing member support section being rotatably received in the aperture in the conductive contact.” (*Id.* at 7-8.) Thus, Carver urges that limitation (b)(ii) of claim 16, as labeled *supra*, is not described by Krause. As explained in detail *post*, we find that the head of the bolt described by Krause, which meets the “securing member support section” (*see, e.g.*, FR 3, 4th para., 1. 3) is not “rotatably received in the aperture of the conductive contact.” Thus, the rejection of claim 16 must be REVERSED. Because none of the rejections of claims dependent on claim 16 cures this defect, those rejections must also be REVERSED.

33. An electrical connector, comprising:

- a first electrical conduit assembly having
 - a first conductive contact and
 - a first aperture in said first conductive contact:
 - a first fastener rotatably received in said first aperture, said first fastener having
 - a head member and
 - a body portion, a part of said body portion being radially outwardly swaged into a substantially frustoconical configuration to prevent said first fastener from being accidentally removed from said first aperture: and
- a second electrical conduit assembly having
 - a second conductive contact. said second conductive conduct being adapted to threadably engage said first fastener.

(Claims App., Br. 22; indentation and paragraphing added.)

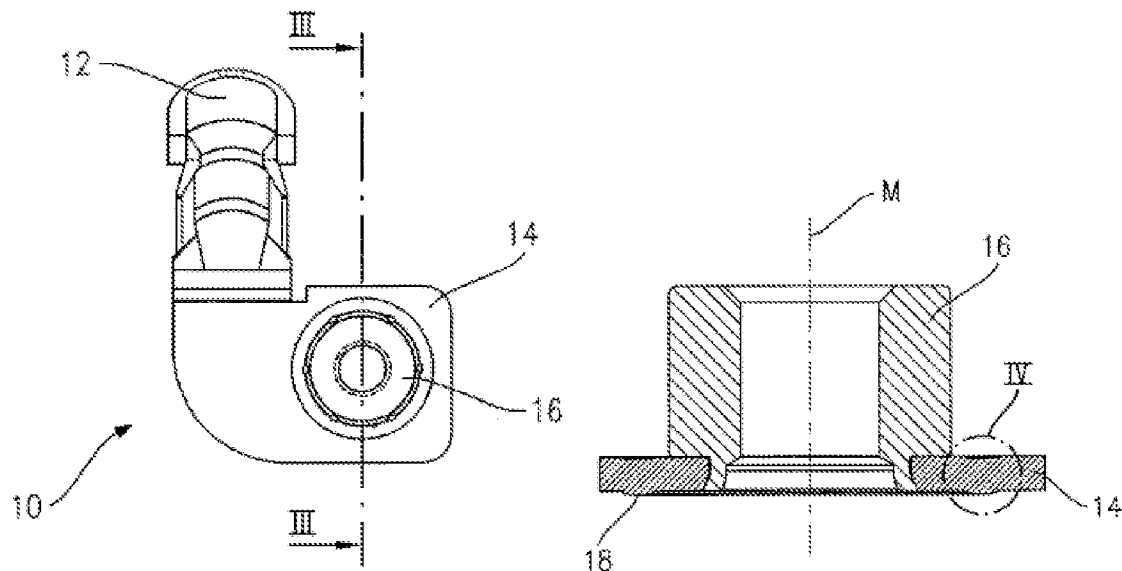
With respect to claim 33, Carver argues the Examiner erred in finding that the annular flange of Krause is “not a body portion adapted to threadedly engage a fastener and does not have a substantially frustoconical shaped portion as claimed.” (Br. 9.) We hold that claim 33 does not require the body portion of the first fastener to “threadedly engage” a second conductive contact. We also find that the captivating portion of Krause’s annular flange is “substantially frustoconical.” Accordingly, we find that Carver has failed to prove harmful error in the Examiner’s rejection. Accordingly, we AFFIRM the rejection of claim 33. However, claims 34 and 35, which depend from claim 33, require the same threading of the body portion required by claim 1. For the same reasons, we therefore REVERSE the rejection of claims 34 and 35. Claim 36 requires that a portion of the body portion of the first fastener be threaded. As the Examiner has not identified disclosure in Krause that supports a finding that the body portion of the first fastener is threaded, we REVERSE the rejection of claim 36.

B. Findings of Fact

Findings of fact throughout this Opinion are supported by a preponderance of the evidence of record.

Krause

1. Krause describes a cable lug 10 shown in Figure 2, reproduced below, left, and in most relevant part in Figure 3, reproduced below, right:



{Figure 2 shows a cable lug; Figure 3 shows the captive nut}

2. Cable lug 10 comprises a cable receiving section 12, a contact section 14 adapted to contact a counter surface to be connected to the cable, and a captive nut 16. (Krause, col. 2, ll. 15-21.)

3. According to Krause, nut 16 “serves for forcing the contact section against the counter surface by screwing the attachment nut onto a screw bolt.” (Krause, col. 2, ll. 21-23.)

C. Discussion

As the Appellant, Carver bears the procedural burden of showing harmful error in the Examiner's rejections. *See, e.g., Gechter v. Davidson*, 116 F.3d 1454, 1460 (Fed. Cir. 1997) (“[W]e expect that the Board's anticipation analysis be conducted on a limitation by limitation basis, with specific fact findings for each *contested* limitation and satisfactory explanations for such findings.”) (emphasis added). All arguments not timely raised in the Brief on Appeal have been waived. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

The first step in an anticipation analysis is to construe the claims correctly. *Gechter*, 116 F.3d at 1457 (“Implicit in our review of the Board's anticipation analysis is that the claim must first have been correctly construed to define the scope and meaning of each contested limitation.”). To be anticipatory, a reference must describe, either expressly or inherently, each and every claim limitation. *E.g., In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

Claim 1 requires that the first fastener have “a threaded passageway extending from said head member to a distal end of said body portion.” This plain language requires that the entire passage way through “to a distal end” of the body portion be threaded. The Examiner has not directed our attention to any disclosure in the 177 Specification that indicates that some special meaning has been given to the term “distal end of said body portion,” such that it means, for example, a point not at the distal end of the body portion.

Figure 2 of Krause indicates the passage through the nut is threaded (although Figure 3 does not show this feature). Moreover, attachment nut 16 is said to force “the contact section against the counter surface by screwing the attachment nut onto a screw bolt.” (Krause, col. 2, ll. 21-22.) Thus, the passage way through the head of nut 16 is indisputably threaded. But threading in the wider section of the passage through nut 16 that begins approximately at the level of contact with section 14—i.e., the “captivating portion”—would not engage the threads of a screw bolt that could engage the threads in the head of the nut. The Examiner has not directed our attention to any credible evidence in Krause that indicates that the captivating portion of nut 16, which corresponds to the “body section” recited in claim 1, is threaded. Accordingly, the rejection of claim 1 as anticipated by Krause is REVERSED.

The Examiner does not rely on any of the secondary references to address the threading limitation. As none of the rejections for obviousness make up the deficit of Krause as to the threading limitation, all rejections of claims dependent on claim 1 must be REVERSED.

Claim 16 requires, *inter alia*, that “said securing member support section be[] rotatably received in said aperture in said conductive contact.” The plain language requires that the support section—not the body section—be rotatably received in the aperture. The “support section,” as the name indicates, is the portion of the conductive securing member 61 that supports the member on the conductive contact 41. Thus, the support section corresponds to head portion 63 shown in Figure 3, *supra*. (See also Spec. 6, ll. 5-6, equating the terms “support section” and “head section.”) Although

it may be that Carver intended to require that that body section be rotatably received in the aperture, we must address the claims before us. As our reviewing court observed in a related context, “what the patentee subjectively intended his claims to mean is largely irrelevant to the claim's objective meaning and scope.” *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1272, 1379 (Fed Cir. 2000).

It is clear from the written description in Krause as well as from Figure 2—and neither the Examiner nor Carver argue otherwise—that the securing member support section, i.e., the main nut described by Krause, is not rotatably received in the aperture formed in contact section 14. Accordingly, the rejection for anticipation of claim 16 is REVERSED. As none of the rejections of claims dependent on claim 16 based on the teachings of Krause combined with either with Kue or Rowls cure this deficiency, all such rejections are also REVERSED.

Claim 33 differs from claim 1 in that claim 33 does not require the body portion to be threaded “to the distal end.” Thus, Carver’s principal argument for patentability is based on an erroneous claim construction. Claim 33 requires only that “the second conductive conduct [sic: contact] be[] adapted to threadably engage said first fastener.” Thus, the first and second fasteners need only “threadably engage” one another. The nut and the threaded body described by Krause meet this limitation, as Krause describes the nut as being screwed onto a screw bolt. We also find no merit in Carver’s objections that the captivating surfaces of nut 16—the curved “tails” that interlock with the aperture in contact section 14—are not substantially frustoconical. The term “frustoconical” means “like the

frustum (base) of a cone.” The figures in the 177 Specification show embodiments purportedly having “substantially frustoconically” swaged distal ends 66 formed against both counter-bored (Figure 8) and countersunk (Figures 1, 3, 6, 7, and 9) through-holes in spacers 81. Both swaged first fasteners are wider at the swaged end and taper to the body portion that passes through the through-hole. The flared portions of the Krause nut are wider at the base and taper to the through-hole of the nut. Thus, the flared portion of the Krause nut has the general tapered shape of the base of a cone. Carver has not shown that the modifier “substantially,” which encompasses some variation from a strictly linear conical shape, excludes the curvature of the interlocking tails on the Krause nut.

Carver has not alleged any other harmful error in the Examiner’s rejection of claim 33. Accordingly, we AFFIRM that rejection.

Claims 34 and 35 require that the body portion be threaded “to said distal end of said body portion,” and claim 36 requires that a “portion of the body portion” be threaded. As noted supra with respect to the corresponding limitation in claim 1, Krause does not describe threading in the tail portion of the nut that corresponds to the “body portion” of the nut recited in these claims. Accordingly, the rejection of claims 34-36 is REVERSED.

It has not escaped our notice that Carver and the Examiner have disputed a number of other limitations in the claims. Because we need not resolve these issues to dispose of this appeal, anything we might say would be purely advisory *obiter dicta*. In the present appeal, we decline to exercise our discretion to comment on these other issues.

D. Order

We AFFIRM the rejection of claim 33 under 35 U.S.C. § 102(b) in view of Krause

We REVERSE the rejection of claims 1, 4, 15-18, and 34-36 under 35 U.S.C. § 102(b) in view of Krause.

We REVERSE the rejection of claims 2, 3, 19, and 20 under 35 U.S.C. § 103(a) in view of the combined teachings of Krause and Kue.

We REVERSE the rejection of claims 5, 6, and 12 under 35 U.S.C. § 103(a) in view of the combined teachings of Krause and Bentrim.

We REVERSE the rejection of claims 7-10, 13, 14, and 22-25 under 35 U.S.C. § 103(a) in view of the combined teachings of Krause and Rowls.

We REVERSE the rejection of claims 11 and 21 under 35 U.S.C. § 103(a) in view of the teachings of Krause.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART

PL Initial:
sld

Appeal 2009-002775
Application 10/767,177

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